

## **REMARKS**

### **I. STATUS OF THE CLAIMS**

Claims 1-22 are pending in the application.

Claims 1-22 are rejected under 35 U.S.C. § 101.

Claims 1, 2, 7-9, 13, 17, 21 and 22 are rejected under 35 U.S.C. § 112, first paragraph.

Claims 1, 2, 7-9, 13, 17, 21 and 22 are rejected under 35 U.S.C. § 112, second paragraph.

Claims 1-22 are rejected under 35 U.S.C. § 103.

Claims 1, 7-9, 13, 17, 21 and 22 are independent claims.

### **II. AMENDMENTS**

Claims 1 and 7-22 are amended.

No new matter has been added.

### **III. CLAIMS REJECTED UNDER 35 U.S.C. §101**

Claims 1-22 are rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

The Examiner contends that the claimed invention relates to an abstract idea in the form of a mathematical algorithm for geometric modeling a representation of an object.

Claims 1-8 are method claims and claims 9-22 are directed to a memory including means plus function elements for projecting and manipulating model

elements. Because the model representations are not used to limit the claimed memory in any way or to achieve a physical conversion or independent physical act or even manipulate data representing a physical object in order to achieve a practical (application), the underlying method could not limit the memory structure itself but rather the memory merely stores and modifies the abstraction of a mathematical model of an object.

However, the disclosed invention has a practical application in computer graphics and computer-aided design, for example, which is described in the present disclosure at page 2, lines 2-4. The claimed invention is **not** a computer program per se, a data structure per se, functional descriptive material, or a natural phenomenon. Thus, the disclosed invention is believed to be directed to statutory subject matter.

To expedite prosecution,

claims 1, 7 and 8 are amended to be directed to be directed to "A computer-implemented method of generating three-dimensional form data to be used in a computer apparatus",

claims 9, 13 and 17 are amended to be directed to "A computer-readable medium (article of manufacture) having stored thereon a plurality of sequences of instructions, said plurality of sequences of instructions including sequences of instructions which, when executed by a processor, cause said processor to generate three-dimensional form data by performing the steps of:", and

claims 21 and 22 are amended to be directed to "A computer system comprising: a processor; and a memory coupled to said processor, the memory having stored therein a sequence of instructions which, when executed by said processor, cause said processor to generate three-dimensional form data by causing the processor to perform the steps of:..."

It is submitted that the underlying process of the "computer-implemented method" of claims 1-8, the "computer-readable medium" (article of manufacture) of claims 9-20, and the "computer system" of claims 21 and 22 provides a very useful function in computer graphics and/or computer-aided design (see page 2, lines 2-4) evincing that the underlying process has real word usefulness.

The EXAMINATION GUIDELINES FOR COMPUTER-IMPLEMENTED INVENTIONS directs Examiners to begin examination by determining what the applicant has invented and is seeking to patent, in the spirit of *Arrhythmia Research Technology, Inc. v. Corazonix Corp.*, 22 USPQ 2d 1033, and how the claims relate to and define that invention. The Examiner should review the complete specification, and should not simply focus upon the claim, searching for a mathematical algorithm upon which to base a rejection. Instead, the Examiner should study the application and prosecution statements to identify statutory subject matter the applicant intends to protect.

If an invention possesses a certain level of "real world" value, as opposed to simply representing nothing more than an idea or concept or starting point for future investigation or research, the invention is "useful". When the requisite "usefulness" of the invention is found, the Examiner is to guide the Applicant, making suggestions for correction, when appropriate. Given the present disclosure, there can be no doubt that the underlying process of claims 1-22, as amended, is statutory subject matter and thus, claims 1-22, as amended, are directed to statutory subject matter.

### **III. CLAIMS REJECTED UNDER 35 U.S.C. §112, FIRST AND SECOND PARAGRAPHS**

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a) Claims 1, 2, 7-9, 13, 17, 21 and 22 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The Examiner notes that these independent claims feature limitations directed to projecting the closed curve and lines in order to modify the curved surface, which is represented by the curves and lines, in three-dimensions. However, the projection of the curves and lines is in two-dimensions and any modifications are made in the two-dimensional projection plane. The Examiner notes that the third dimension, Z or depth, is with definition in the projection plane. Thus, the Examiner contends it is **impossible** to accurately modify the line and curve group in the Z direction, much less accurately modify the curves to fit a three-dimensional model which is also projected into two-space.

b) Claims 1, 2, 7-9, 13, 17, 21 and 22 are rejected under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential steps. The omitted steps are "modifying curves and lines in three-space to contour a three-dimensional mode when all are project into two-space".

The rejection of the claims under 35 U.S.C. § 112 is traversed for the following reasons.

The claims have been amended to recite the steps of:

generating two-dimensional horizontal closed curves and vertical lines intersecting the closed curves, the closed curves and the lines corresponding to a three-dimensional form model; and

projecting horizontal closed curves including a three-dimensional form model and vertical lines intersecting the closed curves to generate a group of curves along a surface of the three dimensional form model.

As amended, the claims call for projecting curves and lines onto a three-dimensional form model or in three dimensions. The projection of the curves and lines is not in two dimensions.

By this response, each of the noted points of lack of description and indefiniteness has been appropriately addressed. Therefore, it is respectfully urged that the rejections of claims 1-22 under 35 U.S.C. § 112, first and second paragraphs, be withdrawn.

#### **IV. REJECTION OF CLAIMS UNDER 35 U.S.C. § 103**

Claims 1-22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Palm.

The Examiner provides a detailed explanation as to how he views what the present invention is and how and why Palm renders the invention obvious.

The rejection of the claims under 35 U.S.C. § 103 is traversed for the following reasons.

The claims as amended include the steps of

generating two-dimensional horizontal closed curves and vertical

lines intersecting the closed curves, the closed curves and the lines corresponding to a three-dimensional form model;

projecting horizontal closed curves including a three-dimensional form model and vertical lines intersecting the closed curves to generate a group of curves along a surface of the three dimensional form model; and

modifying the group of curves by either moving a curve or curves in the group of along a surface of the three-dimensional model, or adding a curve or curves projected to the three-dimensional model in the group of curves, or deleting a curve or curves in the group of curves.

On the other hand, Palm describes a method of determining a particular point from two-dimensional images picked up in different directions. Such a process is characterized as stereo 3D imaging. In essence, Palm deals with a two-dimensional image. The claims, as amended, deal with three-dimensional imaging.

For this reason, Applicants respectfully submit that claims 1-22 are patentable within the meaning of 35 U.S.C. § 103 over Palm, and urge that the rejection of claims 1-22 under 35 U.S.C. § 103 be withdrawn.

V. CONCLUSION

Accordingly, it is urged that the application, as now amended, overcomes the rejection of record and is in condition for allowance. Entry of the amendment and favorable reconsideration of this application, as amended, are respectfully requested.

If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, Examiner is requested to call Applicants' attorney at the telephone number shown below.

Respectfully submitted,

McDERMOTT, WILL & EMERY

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